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January 2001

# Algeria

Algeria is important to world energy markets because it is a significant oil and gas producer and exporter. Algeria also is a member of OPEC and an important energy source for Europe.

*Note: Information contained in this report is the best available as of January 2001 and can change.*



## GENERAL BACKGROUND

Following years of civil war and low oil prices, Algeria now is experiencing a significant economic upturn. Real gross domestic product (GDP) growth is expected to reach 5.1% in 2001, about the same as the 5.2% growth experienced in 2000. With oil revenues pouring in due to sharply higher world oil prices since early 1999, foreign reserves have rebounded sharply, external debt has fallen (down nearly \$2 billion from 1999, to around \$26.5 billion by the end of 2000), the current account balance has improved dramatically (to around \$9.2 billion), and pressures on government finances have been reduced. Problems include: high unemployment (around 30%, and apparently rising), continued low-level political violence (claiming around 100-200 lives per month), labor unrest, a large black market (possibly 20% of the country's GDP), and continued weakness in the non-oil economy (a severe drought hurt the agricultural sector in 2000). Oil and gas continue to account for more than 90% of Algerian export earnings, and about 30% of GDP.

In September 2000, the International Monetary Fund (IMF) issued its assessment of the Algerian economy, urging that the government proceed with privatization and banking reform, while lowering tariffs aimed at protecting domestic industry and reducing dependence on hydrocarbons. The IMF praised the Algerian government for its strong fiscal discipline (and careful monetary policy as well), and for allowing the dinar to depreciate against the dollar. Finally, the IMF pointed out that high oil prices give Algeria an opportunity to make progress on implementing reforms and addressing the country's many problems.

President Abdelaziz Bouteflika, elected President on April 15, 1999 for a 5-year term, has attempted to implement plans for national reconciliation and economic reforms (i.e., deregulation, privatization). More than 100,000 rebels, soldiers and civilians have died in Algeria's civil war, which began in 1992 following the military's nullification of a national election won by the Islamic Salvation Party. On July 13, 1999, President Bouteflika offered amnesty to rebel groups, and on September 16 a national referendum was held in which voters approved the offer. Although the government claims that nearly 80% of rebels (including members of the Islamic Salvation Army) accepted amnesty,

the level of violence now appears to be rising once again, with the most violent groups apparently stepping up attacks. In August 2000, President Bouteflika replaced Prime Minister Ahmed Benbitour with Ali Benflis, a close ally.

## **OIL**

Although oil was first discovered in Algeria at the Hassi Messaoud oil field in 1956, Algeria is considered to be underexplored. Algeria's National Council of Energy believes that the country still contains vast hydrocarbon potential. Over the last few years, significant oil and gas discoveries have been made, largely by foreign companies (in partnership with state-owned Sonatrach, as required by current Algerian law). Sonatrach and its foreign partners hope to increase Algeria's crude oil production capacity significantly over the next few years. In order to accomplish this, Algeria will require significant amounts of foreign capital and expertise. Energy Minister Chakib Khelil has stated that his goal is "to double the number of companies operating in Algeria over the next five years." Khelil also has expressed his view that the industry needs to be restructured in order to survive, and that new regulatory bodies independent of the Energy and Mining Ministry might be needed as well. In January 2001, Algeria's oil and gas industry labor unions announced their opposition to any government plans to open up the country's hydrocarbon sector to foreign investors, and threatened a strike.

Official estimates of Algeria's proven oil reserves remain at 9.2 billion barrels. However, with the recent oil discoveries, plans for more exploration drilling, improved data on existing fields, and use of enhanced oil recovery (EOR) systems, proven oil reserve estimates are expected to be revised upward in coming years. Algeria should also see a sharp increase in crude oil exports over the next few years due to a rapid shift towards domestic natural gas consumption and planned increases in oil production by Sonatrach and its foreign partners. Approximately 90% of Algeria's crude oil exports go to Western Europe, with Italy as the main market followed by Germany and France. The Netherlands, Spain and Britain are other important European markets. Algeria's Saharan Blend oil, 45° API with 0.05% sulfur and negligible metal content, is among the best in the world.

Algeria's Minister of Energy, Chakib Khelil, recently indicated that the government is considering restructuring the state oil company, Sonatrach, and Sonelgas, the state utility, in order to attract private international investment. The major impending change Khelil outlined was to have the Energy Ministry take on Sonatrach's regulatory and negotiating roles. Sonatrach would remain the national oil company but eventually would be forced to compete for new projects. Khelil also raised the idea of privatizing non-core subsidiaries of Sonatrach, in the context of discussing the government's broader privatization efforts - which extend to banks and utilities. It is believed that new legislation now pending would help these state corporations attract foreign investment.

## **Oil Production**

Algeria's average crude oil production in 2000 was 802,000 bbl/d. Together with 430,000 bbl/d of lease condensate and 155,000 bbl/d of natural gas plant liquids, Algeria produced 1.39 million bbl/d of total oil in 2000. Algeria's crude oil production quota was set at 805,000 bbl/d as of February 1, 2001, down 48,000 bbl/d from its previous quota, in effect since October 31, 2000. Algeria has net exports around 1.15 million bbl/d, most of which goes to Europe and the United States.

The largest oil field in Algeria is Hassi Messaoud, which produces about 400,000 bbl/d of 46° API crude, down from 550,000 bbl/d in the 1970s, but up from 300,000 bbl/d in 1989. The Hassi Messaoud area contains an estimated 6.4 billion barrels, or about 70% of the country's proven oil reserves. Sonatrach operates Algeria's other major oil fields, including Rhourde el-Baguel (Algeria's second largest oil field), Tin Fouye Tabankort Ordo, Zarzaitine, Haoud Berkaoui/Ben Kahla, el-Gassi el-Agreb and Ait Kheir. The Hassi R'Mel gas field also produces around 18,000 bbl/d of 46.1° API crude. In April 2000, Amerada Hess announced that it had acquired (for \$55 million) the Gassi el-Agreb Redevelopment Project from Sonatrach. Amerada Hess will form a joint operating company with Sonatrach, to be called Sonahess, and will invest \$500 million over the next 5 years to enhance recovery from the el-Gassi, el-Agreb, and Zotti fields. Currently, the three fields produce around 30,000 bbl/d, and the redevelopment project aims to increase production to 45,000 bbl/d by late 2003.

Algeria's oil sector, unlike that of most OPEC producers, has been open to foreign investors for more than a decade. Around 25 foreign firms from approximately 20 countries currently are operating in Algeria. One of the largest joint ventures in Algeria is the partnership between Anadarko, Lasmo and Denmark's Maersk Oile to develop the Hassi Berkine South oil field. Oil from the field's Block 404 was first produced in May 1998; the field is currently producing approximately 65,000 bbl/d. It is estimated that the field will be producing 285,000 bbl/d by 2002. In June 2000, BHP announced that it would spend \$833 million on oil field development in the Berkine Basin, with production beginning in the first half of 2003. Also in June 2000, First Calgary Petroleum Ltd. announced that it would explore Block 406a (Rhourde Yacoub) in Berkine, and in July 2000, several companies (Burlington Resources, Talisman, and Sonatrach) announced that they would develop the MLN field in Block 405a. Exploration success rates in the Berkine Basin have been high, and several billion barrels of oil may lie within 15 miles or so of the area.

Spain's CEPSA has announced a \$1.3-billion plan to develop its 1-billion barrel Ourhoud oil field in conjunction with Sonatrach. The field, which is slated for eventual production of 230,000 bbl/d, is divided into three blocks operated by Anadarko, Cepsa, and Burlington Resources. Work on a 500,000-b/d oil pipeline to service the field already has been completed by an Anadarko-led consortium.

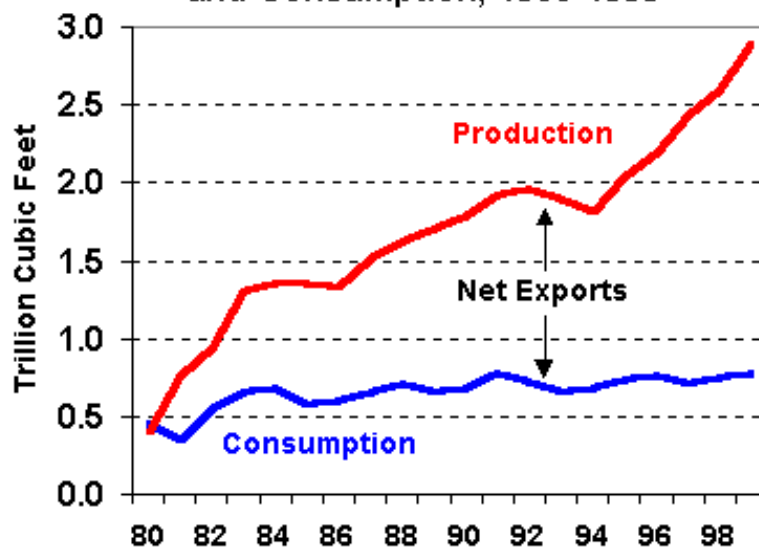
Although Algeria has experienced a significant influx of foreign investment in recent years, it still has many oil fields in need of additional foreign capital and EOR investment. Halliburton has an eight-year contract to provide EOR services and boost production at Hassi Messaoud, for instance, which saw production fall sharply beginning in the mid-1980s. Algeria's second largest oil field, Rhourde El Baguel, has already received foreign investment to boost its production capacity. Rhourde El Baguel contains about three billion barrels of 42.6° API oil, of which less than 450 million barrels has been produced since 1963. In February 1996, Atlantic Richfield (Arco) signed a \$1.3-billion production sharing agreement (PSA) with Sonatrach to increase production at the field. Arco expects to raise the field's output from 27,000 bbl/d to 125,000 bbl/d by 2002.

### Downstream

Algeria has four oil refineries, with combined capacity of 503,000 bbl/d. The 29,000-bbl/d Hassi Messaoud plant supplies products to southern Algeria, as does the smaller 7,000-bbl/d In Amenas plant. The el-Djazair refinery processes crude from Hassi Messaoud. Finally, the coastal 59,000-bbl/d Arzew refinery, which uses Algerian Saharan blend as feedstock, produces both heavier and light products for domestic consumption and export. According to the Middle East Economic Digest, Algeria's domestic demand would support a new 150,000 - 200,000 bbl/d refining facility, but the estimated \$1.5-billion cost of the planned facility is prohibitively expensive at this time. Although Algeria has a substantial petrochemical and fertilizer industry, low capacity utilization rates mean continued reliance on imports. The majority of Algeria's petrochemical plants are located at Annaba (a 550,000-ton-per-year (t/y) - ammonium phosphate fertilizer plant and ammonium nitrate and nitric acid complex), Arzew (365,000 t/y ammonia, 146,000 t/y urea, and 182,500 t/y ammonium nitrate), and Skikda (a 130,000 t/y high-density polyethylene unit, 120,000-t/y ethylene cracker, and a substantial aromatics complex). Sonatrach has undertaken a number of petrochemical and fertilizer expansion projects, including a new methyl tertiary butyl ether (MTBE) complex and a polyester resin complex.

Algeria has seven coastal terminals for crude oil, refined product, NGL, and liquefied natural gas (LNG) exports. These are located at Algiers, Annaba, Arzew, Bejaia, Oran, Skikda, and La Skhirra. Arzew handles about 40% of Algeria's total hydrocarbon exports (including all of its NGL exports), and Algeria has ambitious plans for the port area. Among other things, the government would like to build a petrochemicals complex at Arzew, as well as a condensate refinery and desalination plant. Work also needs to be done to maintain and upgrade Arzew's crude oil loading capacity. A refurbishment project on the port began in 1998, but has not yet been completed. Besides Arzew, Algeria uses the Tunisian port of La Skhirra exclusively for crude exports.

**Algeria's Natural Gas Production and Consumption, 1980-1999**



### NATURAL GAS

Commercial production of natural gas began in 1961. Algeria has 160 trillion cubic feet (Tcf) of proven natural gas reserves, primarily associated, ranking it in the top 10 worldwide. Sonatrach estimates that Algeria's ultimate gas potential is around 204 Tcf. According to Sonatrach, natural gas represented 57% of Algeria's total proven hydrocarbons reserves in 1998. Algeria accounts for one-quarter of EU gas imports. Algeria's largest gas field is the super-giant Hassi R'Mel, which initially held proven reserves of about 85 Tcf. Hassi R'Mel accounts for around 1.35 billion cubic feet (Bcf) per day, or about a quarter of Algeria's total dry gas production. The remainder of Algeria's gas reserves are located in associated and non-associated fields in the southeast, and in non-associated reservoirs in the In Salah

region of southern Algeria. The Rhourde Nouss region holds 13 Tcf of known reserves in the Rhourde Nouss, Rhourde Nouss Sud-Est, Rhourde Adra, Rhourde Chouff, and Rhourde Hamra fields. Smaller gas reserves are located in the In Salah region (5-10 Tcf) as well as at the Tin Fouye Tabankort (TFT) (5.1 Tcf), Alrar (4.7 Tcf), Ouan Dimeta (1.8 Tcf), and Oued Noumer fields. Four plants at Arzew and Skikda, owned by Sonatrach, liquefy gas for

export.

In October 2000, Japan's Itochu won a \$352.7-million contract to install three gas compression stations at Hassi R'Mel. The objective of the project is to extend the life of Hassi R'Mel beyond 2020, and to reverse a decline in reservoir pressure which threatens to decline below minimum operating levels by 2004.

Algeria's natural gas pipeline export capacity of 1.38 Tcf per year includes 988.6 Bcf/y via the 667-mile Trans-Mediterranean (Transmed, renamed Enrico Mattei) line from Hassi R'Mel via Tunisia and Sicily to mainland Italy, and 388 Bcf/y via the 1,013-mile Maghreb-Europe Gas (MEG, renamed Duran Farell) line via Morocco to Cordoba, Spain, where it ties into the Spanish gas transmission network. Algeria has plans to increase its annual gas export capacity to 3.5 Tcf in coming years. In October 2000, TotalFinaElf, along with Sonatrach and Spain's Cepsa, agreed to study the feasibility of building a new gas pipeline linking Algeria directly to Europe via Spain. The line would most likely go from Hassi R'Mel through the port of Arzew to Almeira, Spain.

The European Commission has forecast that Algerian exports will not exceed a 25% share of the European gas market through 2020. In contrast, Europe's two other major gas suppliers, Norway and Russia, are both expected to maintain or expand their 25% market shares. In addition, Algeria has maintained a longstanding policy to develop its gas reserves as a source of domestic energy and as a raw material for the petrochemical industry. Approximately 95% of the country's electricity is generated by gas.

Development of the In Salah region is one of the lynchpins in Algeria's plan to increase its gas exports. In February 2000, BP Amoco and Sonatrach signed a \$2.5-billion deal to develop seven of the twelve existing fields in the In Salah region, including the Garat al-Bafinat, Teguentour, Krechta, Reg, In Salah, Hassi Moumeme, and Gour Mahmoud fields. These fields contain estimated dry gas reserves of 5 Tcf, with a potential for 10 Tcf total. In addition, the joint venture, called In Salah Gas, will appraise existing wells and explore for new gas reserves in the In Salah region. In Salah Gas is the first major gas joint venture between Sonatrach and a foreign partner. Production from the region is expected to come online in late 2003, after the drilling of up to 200 production wells and construction of a \$1-billion, 48-inch pipeline link to Hassi R'Mel. Under the profit-sharing agreement, project investment is split 65% BP, 35% Sonatrach with BP funding the estimated \$100-million cost of the seismic program and a nine well drilling program that includes five appraisal and four exploration wells.

In May 1997, In Salah Gas sealed its first gas sales deal with Italian electricity generator Enel. The deal enables In Salah Gas to take over an existing contract to supply Enel with 141 Bcf/y of gas. Sonatrach will continue supplying the Italian power giant with gas supplies until In Salah is ready to start feeding the contract in 2002. The deal represents In Salah's first step towards achieving its sales goal of 318-388 Bcf/y by early next century. The venture is also marketing gas to potential clients in Europe, Turkey and North Africa.

Besides In Salah, another major Algerian gas and condensates project is Ohanet, located in the Illizi province on the northern edge of the Sahara desert about 60 miles west of the Libyan border. Ohanet is being developed -- at a cost of \$1 billion -- by Australia's BHP (with a 45% share), Woodside Petroleum (15%), Japan Ohanet Oil and Gas, Swiss-Swedish ABB, and U.S.-based Petrofac. Production from Ohanet is expected to begin in 2003, and to include gas, gas liquids, and liquefied petroleum gas. The development project includes construction of a gas processing plant, with capacity of 30,400 bbl/d of condensate, 27,700 bbl/d of LPG, and 665 mmcf/day of natural gas -- as well as a pipeline. BHP is to operate the fields in partnership with Sonatrach.

Following are details of several joint ventures in Algeria's gas sector:

- Amoco Corp. announced in June 1998 (before its merger with BP) that it has signed an agreement with Sonatrach to develop gas fields in the In Amenas area of southern Algeria. The \$900-million deal involves numerous wells, pipeline infrastructure and a gas treatment plant that will handle 700 MMcf/day. First gas production from the area is expected in 2002.
- Petro-Canada is continuing exploration activities in Algeria after its second natural gas find in early 1998. The well, known as Timellouline Sud-1, tested at daily rates of 117 million cubic feet of gas and 5,820 barrels of condensate. In 1998, Petro-Canada spent one-half of its \$35 million budget for international activities in Algeria. Petro-Canada also has held talks with Sonatrach over development of the Tamadanet gas fields in southeastern Algeria.
- Spain's REPSOL (along with Sonatrach and Total Fina Elf) will develop its Tin Fouye Tabankort gas field, with operational startup by the end of 1999. The project is one of three investments in Algeria (the others are an oil field and a petrochemical plant) by the company totaling \$540 million over the next five years.
- In December 2000, Conoco and Sonatrach signed a Memorandum of Understanding on evaluating the potential for using Algerian gas to fuel power generation projects in Algeria, Spain and Turkey.



### **Liquefied Natural Gas (LNG) Exports**

With the start-up of the Arzew GL4Z plant in 1964, Algeria became the world's first LNG producer. In recent years, Algeria's competitive position in the LNG business has suffered due to rivalry from Asia and cheaper alternative energy prices. In fact, Algeria's LNG complexes have been producing below their design capacities due to the growing disadvantage of their higher-cost operations. Algeria was the second largest exporter of LNG in 1998, with 22% of the world's total, exported mainly to Western Europe and the United States. However, Sonatrach has almost completed a total renovation of its LNG facilities which is expected to raise the country's LNG production capacity to 3.19 Bcf/d. This refurbishment program focused on the 1-Bcf/d Arzew GL1Z, 1-Bcf/d Arzew GL2Z, and 770-MMmcf/d Skikda GL1K plants. Also, Algeria's original 260-MMmcf/d Arzew GL4Z, or "Camel," plant, which was slated for decommissioning by 1997, has been refurbished to keep the plant operational for reserve purposes until at least 2003. Prior to refurbishment, operational capacity of the Camel plant was 163 MMmcf/d, or 62%.

In 1999, Algeria exported 841 Bcf of LNG, including 340 Bcf to France, 159 Bcf to Belgium, 137 Bcf to Spain, 118 Bcf to Turkey, 76 Bcf to the United States, and 11 Bcf to Italy. Sonatrach plans to expand its exports, especially to Europe.

### **ELECTRICITY**

Algeria's electricity demand is growing rapidly, and could -- according to Sonelgaz -- 30 billion kilowatthours (BKwh) by 2005, up from 23.2 BKwh in 1999. This likely will require billions of dollars worth of investments in new generating capacity, plus transmission and distribution infrastructure (i.e., lines and sub-stations). In order to accomplish this, Algeria's government hopes to attract foreign capital.

Legislation pending in parliament would end the monopoly over power production held by state-run Sonelgaz and clear the way for Algeria's first independent power projects (IPPs). According to the Middle East Economic Digest, IPPs totaling \$12 billion are planned. These include: 1) a 1,200 MW-Hadjret Ennous plant near Tipasa, scheduled for completion in 2003-4; 2) a 2X600-MW Terga plant near Oran Tipasa, scheduled for completion in 2005-6; and 3) a 2X600-MW Koudiat Draouch plant near Annaba, scheduled for completion in 2003-4. In the nearer term, the 450-MW Hamma gas turbine plant in Algiers is moving ahead toward commissioning in 2000. The plant was originally planned as a private project, but is instead being funded with "soft" Arab and Islamic financing. Private financing is also planned for a three-by-100-MW gas turbine unit at Hassi Messaoud.

Sonelgaz is expanding the gas distribution network to provide gas as a fuel in industry and homes. Sonelgaz plans to invest \$15.5 billion during the period 1996-2001 to develop and expand electricity production and distribution through the country. Algeria has two links to the Moroccan electricity grid and supplies over 550 GWh of electricity to Morocco.

Sonatrach has recently awarded a \$107-million contract to Italy's GE Nuovo Pignone to build the country's first privately financed gas-fired power plant at Hassi Berkine. GE Nuovo Pignone, a subsidiary of General Electric, will also provide a gas treatment system, liquid fuel gas turbine storage and services.

Another Italian firm, Ansaldo Energia, has started work on the Algiers Hamma power station as a turnkey supplier to Sonelgaz. The \$226-million project is being financed by various development agencies in the Gulf countries.

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*Sources for this report include: Africa Energy and Mining; Africa News; Associated Press; BBC Worldwide Monitoring; Business Wire; Economist Intelligence Unit Viewswire; Europe Energy; Financial Times; M2 Presswire; Middle East Economic Digest Quarterly Report -- Maghreb; Oil and Gas Journal; Reuters; WEFA Group.*

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### **COUNTRY OVERVIEW**

**President:** Abdelaziz Bouteflika (since April 1999)

**Prime Minister:** Ali Benflis (since August 2000)

**Independence:** July 5, 1962 (from France)

**Population (2000E):** 32.6 million

**Location/Size:** North Africa/919,595 sq. miles, more than one-quarter the size of the United States

**Major Cities:** Algiers (capital), Constantine, Annaba, Arzew, Skikda, Oran, Ghardaia, Bechar, Ouargla, Touggourt

**Languages:** Arabic (official), French, Berber dialects

**Ethnic Groups:** Arab (84%), Berber (16%), European (less than 1%).

**Religions:** Sunni Islam (state religion) 99%, Christianity and Judaism 1%

**Defense (1999E):** Army (105,000), Navy (7,000), Air Force (10,000), Paramilitary Forces (181,200). Total armed forces: 303,200.

**ECONOMIC OVERVIEW****Currency:** Algerian Dinar (AD)**Market Exchange Rate (1/29/01):** US \$1 = AD 77.9**Nominal Gross Domestic Product (GDP -- market exchange rates) (2000E):** \$46.3 billion**Real GDP Growth Rate (2000E):** 5.2% **(2001F):** 5.1%**GDP Per Capita (2000E):** \$1,480 **(2001F):** \$1,570**Inflation Rate (consumer prices) (2000E):** 5.0% **(2001F):** 5.5%**Unemployment Rate (2000E):** 30%**Current Account Balance (2000E):** \$9.2 billion **(2001F):** \$6.8 billion**Major Trading Partners:** Italy, France, United States, Germany, Spain, Netherlands**Merchandise Exports (2000E):** \$17.8 billion **(2001F)** \$18.4 billion**Merchandise Imports (2000E):** \$11.9 billion **(2001F)** \$12.4 billion**Major Export Products:** Petroleum and natural gas**Major Import Products:** Industrial equipment, 26.5%; Intermediate Goods, 25.9%; Food, 24.9%; Consumer Goods, 12.8%.capital goods.**Crude Oil Export revenues (2000E):** \$10.6 billion (up from \$6.5 billion in 1999)**Total Hydrocarbon Export Revenues/Total Export Revenues (2000E):** 90%**Total Reserves (non-gold) (2000E):** \$11.0 billion**Total External Debt (12/00E):** \$26.5 billion**ENERGY OVERVIEW****Energy Minister:** Chakib Khelil**Proven Oil Reserves (1/1/01E):** 9.2 billion barrels**OPEC Crude Oil Production Quota (2/1/01):** 805,000 bbl/d**Oil Production Capacity (2000E):** 1.5 million bbl/d**Oil Production (2000E):** 1.39 million bbl/d (of which 802,000 bbl/d is crude, 430,000 bbl/d is condensate, and 155,000 bbl/d is NGLs)**Oil Consumption (2000E):** 241,000 bbl/d**Net Oil Exports (2000E):** 1.15 million bbl/d**Oil Exports to the United States (January-October 2000E):** 214,000 bbl/d**Oil Refining Capacity (1/1/01E):** 502,665 bbl/d**Natural Gas Reserves (1/1/01E):** 159.7 trillion cubic feet (Tcf)**Natural Gas Production (1999E):** 2.9 Tcf**Natural Gas Consumption (1999E):** 0.8 Tcf**Net Natural Gas Exports (1999E):** 2.1 Tcf (of which, 1.2 Tcf was via pipeline and 0.9 Tcf was LNG)**LNG Customers (1999):** France, Spain, Turkey, United States, Belgium, Italy**LNG Exports to the United States (1999E):** 75.8 billion cubic feet**Natural Gas Pipeline Customers (1999):** Italy, Spain, Tunisia, Slovenia, Portugal**Recoverable Coal Reserves (1998E):** 44 million short tons (MMST)**Coal Production (1999E):** 0.02 MMST**Coal Consumption (1999E):** 0.73 MMST**Net Coal Imports (1999E):** 0.71 MMST**Electric Generation Capacity (1999E):** 6.0 gigawatts (95% thermal, 5% hydroelectric)**Electricity Generation (1999E):** 23.2 billion kilowatthours**ENVIRONMENTAL OVERVIEW****Minister of Public Works, Urban Development and the Environment:** Mohamed Ali Boughazi**Total Energy Consumption (1999E):** 1.3 quadrillion Btu\* (0.3% of world total energy consumption)**Energy-Related Carbon Emissions (1999E):** 23.4 million metric tons of carbon (0.4% of world carbon emissions)**Per Capita Energy Consumption (1999E):** 42.6 million Btu (vs. U.S. value of 350.7 million Btu)**Per Capita Carbon Emissions (1999E):** 0.8 metric tons of carbon (vs. U.S. value of 5.6 metric tons of carbon)**Energy Intensity (1999E):** 17,703 Btu/ \$1990 (vs U.S. value of 12,639 Btu/ \$1990) \*\***Carbon Intensity (1999E):** 0.32 metric tons of carbon/thousand \$1990 (vs U.S. value of 0.20 metric tons/thousand \$1990)\*\***Sectoral Share of Energy Consumption (1997E):** Industrial (48.4%), Transportation (28.3%), Residential (23.4%)**Sectoral Share of Carbon Emissions (1997E):** Industrial (43.9%), Transportation (33.0%), Residential (12.1%).**Fuel Share of Energy Consumption (1999E):** Natural Gas (67.2%), Oil (31.3%), Coal (1.5%),**Fuel Share of Carbon Emissions (1999E):** Natural Gas (69.5%), Oil (28.7%), Coal (1.8%)**Renewable Energy Consumption (1997E):** 22.4 trillion Btu\* (1% increase from 1996)**Number of People per Motor Vehicle (1997E):** 19.2 (vs. U.S. value of 1.3)**Status in Climate Change Negotiations:** Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified June 9th, 1993). Not a signatory to the Kyoto Protocol.

**Major Environmental Issues:** Soil erosion; desertification; river and coastal water pollution due to the dumping of raw sewage, petroleum refining wastes, and other industrial effluents; inadequate supplies of potable water.

**Major International Environmental Agreements:** A party to Conventions on Biodiversity, Climate Change, Desertification, Endangered Species, Environmental Modification, Law of the Sea, Ozone Layer Protection, Ship Pollution, Wetlands. Has signed, but not ratified, the Nuclear Test Ban Treaty.

\* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar and wind electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.

### **OIL AND GAS INDUSTRIES**

**Organizations:** Entreprise Nationale pour la Recherche, la Production, le Transport, la Transformation et la Commercialisation des Hydrocarbures (Sonatrach) - State-owned company for exploration, transport and marketing of petroleum, natural gas and related products; Entreprise Nationale de Raddinage des Produits Petroliers (Naftec) - Operates and manages all refineries; Entreprise Nationale de Commercialisation et de Distribution des Produits Petroliers (Naftel) - Domestic product distribution. Societe de Conditionnement, Comercialisation & Transport de Gas Industriels (Cogiz) - produces natural gas by-products.

**Terminals:** Algiers, Annaba, Arzew (LNG)(condensate), Bejaia, Oran, Skikda (LNG), La Skhirra (Tunisia)(crude)

**Natural Gas Export Pipelines:** TransMed (Hassi R'Mel- Tunisia-Sicily-Italy (Minerbo)), Maghreb-Europe Gas (MEG) (Hassi R'Mel-Morocco-Spain (Cordoba)-Portugal (Leiria))

**Crude Oil Refineries (capacity-bbl/d)(2000E):** Skikda (351,800), el-Djazair (63,323), Arzew (58,632), Hassi Messaoud (28,910)

**LNG Facilities (Design/Refurbished Capacity - billion cubic feet per year) (1997):** Arzew GL4Z (54), Arzew GL1Z (429), Arzew GL2Z (341.3), Skikda GL1K (287)

**Selected Foreign Energy Company Involvement:** Agip, Anadarko, Arco, BP, BHP, Cepsa, Conoco, ENI, Exxon Mobil, Halliburton, Lasmo, Louisiana, Maersk, Neste Oy, Oryx, PetroCanada, Phillips, Ranger, Repsol, Sasol, Samsung, Sun Oil, Talisman, TotalFinaElf, Wintershall, YPF

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